

LARVAE OF *XIPHOPENAEUS KROYERI* (HELLER, 1862)
(CRUSTACEA: DECAPODA: PENAEIDAE) FROM
OFFSHORE WATERS OF VIRGINIA, U.S.A.

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Abstract.—A range extension is provided for the shrimp *Xiphopenaeus kroyeri* (Heller, 1862). Larvae of *X. kroyeri* were collected from offshore waters of Virginia, U.S.A. near the Chesapeake Light Tower (36°54'N, 75°43'W). Zoecal stages I-III, V-VII, and IX were obtained at depths ranging from neuston to epibenthic, during the day and night, with a maximum concentration of 6.8 per cubic meter. This report extends the known range of *X. kroyeri* about 190 km northward from Cape Hatteras, North Carolina.

Zooplankton collections taken off the coast of Virginia were found to contain larval specimens of *Xiphopenaeus kroyeri* (Heller, 1862). This species was previously known to occur from capes Hatteras and Lookout, North Carolina, through the Gulf of Mexico and Caribbean Sea to Brazil (Williams 1984).

A station near the Chesapeake Light Tower (36°54'N, 75°43'W) was occupied for a continuous 72-hour period, 13-16 August 1985, (Maris 1986). Quantitative plankton samples were collected at three-hour intervals from the following depths: neuston (0.10-0.15 m), 1 m, 3 m, 6 m, epibenthic (12.8 m).

A total of 125 samples were collected, of which 12 (9.6%) contained specimens of *X. kroyeri*. Zoecal stages I, II, III, V, VI, VII, and IX were obtained and identified using descriptions provided by Kurata (1970). The larvae were found at all depths sampled, during both day and night collections, with a maximum concentration of 6.8 per cubic meter. A summary of the entire collection of larval *X. kroyeri* can be found in Table 1.

The occurrence of larval *X. kroyeri* might indicate breeding populations in Virginia waters, but possible transport from the south cannot be eliminated. However, the presence of early zoeae casts doubt on long-dis-

Table 1.—Offshore Virginia collections of larvae of *Xiphopenaeus kroyeri* (Heller, 1862).

Date (1985)	Time (EDT)	Depth (m)	Stage	Density (no./m ³)
13 Aug	1500	6	II	0.7
14 Aug	0000	1	III	2.2
15 Aug	0000	0	IX	0.8
15 Aug	0000	6	VI	2.0
15 Aug	0300	6	III	1.1
15 Aug	0300	6	VII	1.1
15 Aug	0900	6	I	1.1
15 Aug	1500	6	II	1.0
15 Aug	1500	6	V	1.0
16 Aug	0000	0	V	1.8
16 Aug	0300	13	I	0.7
16 Aug	0600	3	II	6.8
16 Aug	0900	6	II	1.1
16 Aug	0900	6	VII	1.1
16 Aug	1200	6	II	2.2
16 Aug	1200	6	III	2.2

tance transport as the sole dispersal mechanism. Also, the abundance and variety of later zoecal stages seems to imply that at least limited metamorphosis is occurring off Virginia. Thus, this report extends the known range of *X. kroyeri* about 190 km northward from Cape Hatteras, North Carolina.

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